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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/741,491	12/19/2003	Dennis S. Greywall	Greywall 30-8	4102
46850	7590	03/16/2005	EXAMINER	
STEVE MENDELSON			CHOI, WILLIAM C	
MENDELSON & ASSOCIATES, P.C.				
1515 MARKET STREET			ART UNIT	
SUITE 715			PAPER NUMBER	
PHILADELPHIA, PA 19102			2873	
DATE MAILED: 03/16/2005				

Please find below and/or attached an Office communication concerning this application or proceeding.

H.A

**Office Action Summary**

Application No.

10/741,491

Applicant(s)

GREYWALL ET AL.

Examiner

William C. Choi

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2873

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --****Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on 09 December 2004.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1,3-16 and 18-35 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1,3-16 and 18-26 is/are allowed.
- 6) ☒ Claim(s) 27-35 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 19 December 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)             | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)    | Paper No(s)/Mail Date. _____  |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____   | 6) <input type="checkbox"/> Other: _____                                    |

## **DETAILED ACTION**

### ***Allowable Subject Matter***

The indicated allowability of claims 11, 21 and 27 is withdrawn in view of the newly discovered reference(s) to Plante et al (U.S. 4,655,563). Rejections based on the newly cited reference(s) follow.

### ***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 29 and 32 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Specifically, in regard to claims 29 and 32, applicant discloses wherein the second actuator comprises "third" and "fourth" electrodes. However, in respective parent claims, 28 and 31, applicant does not disclose a "first" or "second" electrode in either the first or second actuator, thereby rendering the claim vague and indefinite. Therefore, these claims were not considered.

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

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A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 27, 28, 30 and 31 are rejected under 35 U.S.C. 102(b) as being anticipated by Plante et al (U.S. 4,655,563).

In regard to claim 27, Plante et al discloses a MEMS device, comprising: a deformable plate (column 2, lines 67-68, Figure 2, "10") rotatably supported on a substrate (column 3, lines 55-58, Figure 2, "20"); an actuator adapted for deforming said plate (column 4, lines 34-36, Figure 2, "18"), wherein deformation of said plate is independent of any rotation of said plate (column 2, lines 20-34).

In regard to claims 28 and 31, Plante et al discloses a MEMS device and method of deforming, comprising: a deformable plate (column 2, lines 67-68, Figure 2, "10"); a first actuator mounted on the deformable plate and adapted to apply a deformation force to the deformable plate to change the shape of the plate (column 4, lines 34-36, Figure 2, "18"); a substrate, wherein the plate is movably connected to the substrate (column 3, lines 55-58); and a second actuator adapted to move the plate with respect to the substrate (column 3, lines 55-65, Figure 2, "20").

Regarding claims 30 and 33, Plante et al discloses wherein motion imparted onto the plate by the second actuator is substantially decoupled from deformation imparted onto the plate by the first actuator (column 2, lines 20-34).

Claims 34 and 35 are rejected under 35 U.S.C. 102(b) as being anticipated by Motamedi et al (U.S. 5,903,380).

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In regard to claim 34, Motamedi et al discloses a MEMS device (column 1, lines 6-8, Figure 1), comprising: a deformable plate (column 3, lines 57-58, Figure 1, "10"); and a first actuator fully mounted on the deformable plate and adapted to apply a deformation force to the deformable plate to change the shape of the plate (column 4, lines 30-48, Figure 1, "18").

In regard to claim 35, Motamedi et al discloses a method of deforming a plate in a MEMS device (column 4, lines 30-48, Figure 1, "10, 18"), comprising: applying to the plate a deformation force produced by the first actuator fully mounted on the plate and adapted to change the shape of the plate (column 4, lines 30-48).

### ***Allowable Subject Matter***

Claims 1-26 are allowed.

The following is a statement of reasons for the indication of allowable subject matter: The prior art fails to teach a combination of all the claimed features as presented in claims 1 and 3-16 and 18-23: a MEMS devices and deformation method as claimed, specifically wherein, when a voltage differential is applied between the first and second electrodes, the electrodes move with respect to each other thereby generating the deformation force.

The prior art fails to teach a combination of all the claimed features as presented in claims 24 and 25: a MEMS device comprising a deformation actuator mounted on a deformable plate connected to a substrate as claimed, specifically wherein, when the plate adopts a shape and moves with respect to

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the substrate without a change of the adopted shape, the actuator moves together with the plate without a change in the deformation force applied to the plate by said deformation actuator.

The prior art fails to teach a combination of all the claimed features as presented in claim 26: a MEMS device comprising a deformable plate movably supported on a substrate and a means for deforming said plate as claimed, specifically wherein, when the plate adopts a shape and moves with respect to the substrate without a change of the adopted shape, the means for deforming the plate moves together with the plate without a change in the deformation force applied to the plate by said means for deforming.

### ***Response to Arguments***

Applicant's arguments with respect to claims 27-35 have been considered but are moot in view of the new ground(s) of rejection.

### ***Conclusion***

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Xie (U.S. 2004/0218877 A1) is being cited herein to show a MEMS device comprising some of the structural limitations of that of the claimed invention, but does not specifically disclose the deformation of the plate as claimed.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to William C. Choi whose telephone number is

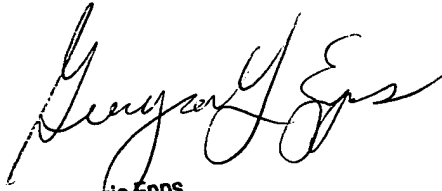
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(571) 272-2324. The examiner can normally be reached on Monday-Friday from about 9:00 am to 6 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Georgia Y. Epps can be reached on (571) 272-2328. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

*W.C.*  
William Choi  
Patent Examiner  
Art Unit 2873  
March 5, 2005

  
Georgia Epps  
Supervisory Patent Examiner  
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